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MEMORANDUM FOR: Kenneth C. Jackson, Section Leader
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SUBJECT: TRIP REPORT: ORNL CONTRACT PLANNING

On December 16 and 17, 1986, the Oak Ridge National Laboratory (ORNL) was visited for the purpose of planning FY 87/(88?) work for technical assistance (T.A.) contract B-0287 (Geochemical Technical Assistance), and T.A. contract B-0290 (Solubility/Sorption/Geochemical Conditions Testing). In addition, a meeting to discuss the work to be done under research contract (RES) B-0462 (Valence Effects ...) was coordinated with George Birchard (who accompanied us to ORNL) to coincide with our T.A. contract meeting. The meeting agenda, and a list of participants are enclosed (attachments 1 and 2).

Based on the discussions, it was agreed that FY 87 (and in some cases FY 88) work for each of the projects will be as follows:

B-0287 (Technical Assistance In Geochemistry)

1. Basalt solubility topical report (Final NUREG/CR-Jan/Feb, 1987).
2. Basalt geochemical conditions topical report (Final NUREG/CR - April/May, 1987).
3. Matrix diffusion topical report (Final NUREG/CR-July/Aug., 1987).
4. Letter report concerning data/information needs for geochemical issue resolution (Draft - April 1987).
5. Letter report concerning acceptable methods/strategies/approaches for collecting data/information needed for issue resolution (Draft - June 1987).
6. Letter report concerning the precision/accuracy/uncertainty of data/methods/strategies/approaches (Draft - FY87?/FY88?).

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Items 4, 5, and 6 represent a significant new effort aimed at providing us with guidance needed for SCP review. The milestones/dates are, at present, tentative. The new work is being "scoped out" by ORNL, and work plans/milestones will be submitted for NRC review by the end of January.

B0290 (Solubility/Sorption/Geochemical Conditions Testing)

- 1) Batch desorption experiments involving strontium on tuff to explain recent discrepancies between results obtained from batch sorption tests and column tests (FY87).
- 2) Competition effects on retardation factors involving multiple radionuclides including Sr, Cs, Np, U (FY87/88?).
- 3) Studies monitoring groundwater composition changes in the unsaturated zone near waste canisters (Tuff, FY 87)
- 4) Activity coefficient studies in Na-K systems which are of major importance to modeling of both high and low salinity geochemical environments (FY 87/88? NOTE: This work would be done only if additional funding could be obtained.)

Also, ORNL expressed a need to meet with NTS experimentalists because the results of experimental work from the site contractors takes more than a year to be released. The Oak Ridge contractors need to know what experimental work has been, and is being done, in a more timely manner. The possibility for such a meeting is currently being discussed with King Stablein, Paul Prestholt, and Gerry DePoorter from LANL. Finally, there was considerable discussion concerning FY 88 funding. The Oak Ridge contractors need to know whether B0290 will be funded through FY88. If it is going to be funded, equipment could be assembled now to make the contract more productive over the two year period. Otherwise, the contractors will carry on in a more limited way. This issue needs to be resolved as soon as possible.

RES B0462 (Valence Effects ...)

- 1) Experiments to determine the reasons why europium and americium solutions are often not stable and to determine likely species in groundwaters from various sites (FY 87/88).
- 2) Experiments to study the determination of solubilities of reduced oxides in highly saline environments (FY 87/88).
- 3) Experiments to evaluate whether incorporation of nuclides into solid phases precipitating from groundwaters is an important mechanism of removal of technetium, and to provide possible interpretations of some of the existing data on technetium removal from iron-containing groundwaters (FY 87/88).

Finally, ORNL QA/QC for these projects was discussed. The internal QA/QC procedures used by the NRC geochemistry section for contract products was given to ORNL as an example of the type of information that we need in order to understand their QA/QC system. It was agreed that something similar would be put together by ORNL for each of the contracts. A draft of this will be ready by the end of January for our review.

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